



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,610	03/15/2004	Makoto Izumi	57810-090	8398

7590 07/25/2005

McDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER	
TRAN, LONG K	

ART UNIT	PAPER NUMBER
2818	

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/799,610	IZUMI ET AL.	
	Examiner	Art Unit	
	Long K. Tran	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 - 21 is/are pending in the application.
- 4a) Of the above claim(s) 9 - 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/15/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

***Election/Restrictions***

1. Applicant's election of Group I, claims 1 – 8 in the reply filed on June 28, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 9 – 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected group there being no allowable generic or linking claim.

Applicant has the right to file a divisional application covering the subject matter of the non-elected claims.

***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed on March 15, 2004.

***Information Disclosure Statement***

3. This office acknowledges of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on March 15, 2004.

The references cited on the PTO -1449 form have been considered.

***Specification***

4. The specification has been checked to the extent necessary to determine the presence of possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. Specification, page 17, line 3: change "electrode 4" to —electrode 5—

Art Unit: 2818

6. Abstract, line 7: change "comprises" to -- includes --.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1, the limitations "the minimum limit dimension of lithography" is unclear.

The minimum limit dimension of the lithography will change over time depending on the improvements in processes and apparatus. For examination purposes, the minimum limit dimension of the lithography is considered higher than 100 nm (as described in the applicant's specification page 17, line 20 – 22).

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Hawkins et al. (US Patent No. 5,719,075).

11. Regarding claim 1, Hawkins discloses a solid state image device comprising: a gate insulator film 20 (figs. 2B – 2M; column 6, lines 54 – 64) formed on a semiconductor substrate 10 (figs. 2A – 2M); a first gate electrode 30a (figs. 2B – 2M; column 6, lines 64 – 67 and column 7, lines 11 – 15), formed on said gate insulator film 20, having a substantially flat upper surface 31 (fig. 2F; column 8, lines 7 – 25 and lines 39 – 44); and a second gate electrode 40a (figs. 2E – 2M; column 8, lines 7 – 10)

formed on said gate insulator film 20 through an insulator film 48 (figs. 2D – 2M; column 7, lines 42 – 50), having a thickness, in range from 200 to 1000 Å, smaller than the minimum limit dimension of lithography to be adjacent to said first gate electrode 30a without overlapping said first gate electrode 30a.

Regarding claim 2, Hawkins discloses the insulator film 48 including a thermal oxide, silicon dioxide, film (column 7, lines 42 – 47).

Regarding claim 3, Hawkins discloses the second gate electrode 40a has a substantially flat upper surface 41 (fig. 2F; column 8, lines 7 – 25 and lines 39 – 44)

Regarding claim 4, Hawkins discloses the upper surfaces 31 and 41 of said first gate electrode 30a and said second gate electrode 40a are substantially flush with each other (fig. 2F; column 8, lines 12 – 44).

Regarding claim 5, Hawkins discloses the upper surface of said insulator film 48 is substantially flush with the upper surfaces of said first gate electrode 30a and said second gate electrode 40a (fig. 2F; column 8, lines 12 – 44. Note coplanar within 100 Å is considered substantially flush for CMP process (column 8, line 13 – 14 and lines 40 – 44); many possible planarizing procedures (column 8, lines 17 – 18) can be used to improve the coplanar.

Regarding claim 6, Hawkins discloses the gate insulator film 20 including silicon nitride insulator film 16 (fig. 2A) at least partially having an oxidation inhibiting function. (Note although Hawkins does not explicitly teach film 16 at least partially having an oxidation inhibiting function. However, since the insulator layer 16 of Hawkins and the insulator film 20b of the claimed invention is made of the same material therefore, it is

Art Unit: 2818

inherent that the insulator 16 of Hawkins having at least partially having an oxidation inhibiting function as claimed invention).

Regarding claim 7, Hawkins discloses the gate insulator film 20 includes a first gate insulator film 14 (fig. 2A) and a second gate insulator film 16 (fig. 2A) formed on the first gate insulator film.

Regarding claim 8, Hawkins discloses the insulator film 14 (fig. 2A) is a silicon dioxide layer (column 6, line 57 – 59).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long K. Tran whose telephone number is 571-272-1797. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LKT  
July 6, 2005

